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Data for Low-Latency Electromagnetic Training

Monday 10 July 2023 19:00 (2 hours)

The current and upcoming Gravitational Wave (GW) observing runs by LIGO/Virgo/KAGRA detectors will result in significantly more detections than previous runs. Preparation to follow up associated electromagnetic signals promptly and accurately from binary neutron star (BNS) and neutron star black hole (NSBH) detections now depends heavily on real-time ML implementation at the detectors. The public alert data products from IGWN are at the center of real-time go-no-go triggering of EM telescopes, such as ZTF. We develop a comprehensive low-latency data set that incorporates all available data provided by IGWN alert stream. This dataset is built on GW localizations from observing scenarios simulations and draws of additional products are derived from associated injections for BNS and NSBH sources. While many ML models focused on electromagnetic follow-up are trained on select data products, this dataset will be the first to provide a complete set of alert products drawn from a realistic end-to-end GW-EM simulation. This data will be used to train classifiers and autonomous agents focused on optimizing low-latency follow-up strategies. By optimizing alert-to-trigger decision-making we positively impact resource allocation and technical capabilities as well as the collective scientific return of these highly valuable observing runs.

Author: GRAY, Abigail

Presenter: GRAY, Abigail

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